

WHAT IS CLAIMED IS:

1. DNA encoding one or more P28 proteins from *Ehrlichia chaffeensis*, wherein said proteins have amino acid sequences selected from the group consisting of SEQ ID No. 1, SEQ ID No. 2, SEQ ID No. 3, SEQ ID No. 4, SEQ ID No. 5, SEQ ID No. 6, SEQ ID No. 7, SEQ ID No. 8, SEQ ID No. 9, SEQ ID No. 10, SEQ ID No. 11, SEQ ID No. 12, SEQ ID No. 13, SEQ ID No. 20 and SEQ ID No. 21, and wherein said DNA is selected from the group consisting of:
- 10 (a) isolated DNA which encodes said P28 proteins;
- (b) isolated DNA which hybridizes to isolated DNA of (a) above under high stringency conditions consisting of hybridization at 42°C in the presence of about 50% formamide, a first wash at 65°C with 2 X SSC containing 1% SDS and a second wash
- 15 at 65°C with 0.1 X SSC, and which encodes said P28 proteins; and
- (c) isolated DNA differing from the isolated DNAs of (a) and (b) above in codon sequence due to the degeneracy of the genetic code, and which encodes said P28 proteins.

2. The DNA of claim 1, wherein said DNA is selected from the group consisting of GenBank accession number AF230642 and GenBank accession number AF230643.

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3. The DNA of claim 1, wherein said DNA consists of a single locus of *Ehrlichia chaffeensis* encoding said P28 proteins.

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4. The DNA sequences of claim 3, wherein said locus is a multigene locus of 23 kb length.

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5. A vector comprising the DNA of claim 1 and regulatory elements necessary for expression of the DNA in a cell.

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6. A host cell transfected with the vector of claim 5, said vector expressing a P28 protein.

7. The host cell of claim 6, wherein said cell is selected from group consisting of bacterial cells, mammalian cells, plant cells and insect cells.

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8. The host cell of claim 7, wherein said bacterial cell is *E. coli*.

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9. An isolated and purified *Ehrlichia chaffeensis* P28 surface protein encoded by the DNA of claim 1.

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10. An isolated and purified P28 protein having an amino acid sequence selected from the group consisting of SEQ ID No. 1, SEQ ID No. 2, SEQ ID No. 3, SEQ ID No. 4, SEQ ID No. 5, SEQ ID No. 6, SEQ ID No. 7, SEQ ID No. 8, SEQ ID No. 9, SEQ ID No. 10, SEQ ID No. 11, SEQ ID No. 12, SEQ ID No. 13, SEQ ID No. 20 and SEQ ID

20 No. 21.

11. An antibody directed against the P28 protein of
claim 10.

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12. The antibody of claim 11, wherein said antibody is
a monoclonal antibody.

10 13. A vaccine against *Ehrlichia chaffeensis* comprising
one or more of the proteins of Claim 10.